

**AMENDMENTS TO THE DRAWINGS**

The attached sheet of drawings includes a change to Fig. 19. This sheet replaces the original sheet including Fig. 19. In Figure 19, the Schottky contact incorrectly labeled 1910 has been relabeled 1914.

**REMARKS**

This responds to the Office Action mailed August 10, 2005 for the above application in which claims 1-24 are now pending. Reconsideration of the application and claims in light of the following is requested.

**Drawing Objection**

In paragraph 1 of the Office Action, the drawings were objected to as failing to comply with 37 CFR 1.84(b)(4) because reference character “1910” was used to designate both the active region and Schottky contact in Figure 19. A “Replacement Sheet” Figure 19 is attached hereto changing the reference numeral for the Schottky contact from “1910” to “1914”. Entry of this sheet is requested. It is respectfully submitted that the corrected drawing sheet is in compliance with 37 CFR 1.84(b)(4). A corresponding amendment to the Specification is made concurrently herewith to bring the Specification into conformity with the Replacement Sheet.

**Non-art Rejections**

In paragraph 2 of the Office Action, claim 5 was rejected as being nonenabling. To the extent the rejection is understood, the rejection is respectfully traversed as being a misreading of the claim. Amended claim 1, from which claim 5 depends, recites in pertinent part “a Schottky contact having a first portion” and claim 5 additionally recites in pertinent part “a second portion of the Schottky contact”. In contrast, the understanding evidenced by the Office Action is that claim 5 is adding a second Schottky contact. This understanding is incorrect, taken as a whole, claim 5 is referring to two parts of the same Schottky contact, not two Schottky contacts. Withdrawal of the §112, ¶1 based rejection of claim 5 is respectfully requested.

In paragraph 3 of the Office Action, claims 1-24 were rejected as indefinite because Schottky is misspelled in claims 1, 5 and 20. Claims 1, 5 and 20 have now been amended to correct the spelling of Schottky. It is respectfully submitted that claims 1-24 are now definite.

**Art Rejections**

In paragraph 4 of the Office Action, claims 1-4, 6-7, 10-15 and 20-25 were rejected under 35 U.S.C. 102(e) as anticipated by Aronson et al., U.S. Pat. No. 6,483,862 ("Aronson"). The rejection is respectfully traversed.

The description accompanying the rejection of claim 1 correctly notes that element 220 is a laser and element 210 is a photodetector. However, as is apparent from the arrow, the laser is emitting through the photodetector with the Schottky contact being on the emission side of the laser.

The Patent Office is directed to the following passage from the instant application that expressly defines the applicable terminology to be applied.

For ease of explanation herein, the side of the laser having the mirror with the lower reflectivity, which corresponds to the mirror through which the laser is intended to emit during operation is referred to as the "active" side. The side opposite the emission (i.e. active) side of the laser is referred to herein as the "passive side" of the laser and the mirror on that side is referred to as the passive side mirror.  
(Application at p. 7).

Thus, contrary to the statement in the Office Action, neither the photodetector nor the Schottky contact of Aronson are on the passive side (which would be the side of the laser 220 containing contact 201).

Accordingly, claim 1, as well as claims 2-4, 6-7, and 10-15 which ultimately all depend from claim 1, distinguish over Aronson and withdrawal of the rejection is respectfully requested.

Similarly, claim 20 recites "measuring photons leaked out of the laser, through the passive side mirror," an aspect that is not disclosed by Aronson -- again, Aronson places the photodetector

over the emission side of the laser and takes its measurement from there. Accordingly, claim 20, as well as claims 21-24 which all depend from claim 20, are distinguished over Aronson and withdrawal of the rejection is respectfully requested.

With respect to the dependent claims, the Office Action is either in error about what Aronson discloses or they add further aspects that are not disclosed by Aronson and thus add aspects that are each an independent basis for allowability.

The Office Action alleges, with respect to claim 2, that “Aronson discloses a substrate 202 abutting the active side.” This is incorrect for two reasons. First, element 202 is not a substrate, it is a layer of the laser structure (see col. 10, lines 58-59) and, as described above, the “active side” is the emission side of the laser which would be the area between the contacts 207 of FIG. 3. Accordingly, claim 2 is independently allowable over Aronson.

With respect to claim 3, the Office Action alleges that element 215 is a “window”. Again, the Office Action is incorrect. As described at col. 10, lines 61-64, element 215 is a layer of AlOx formed from a layer of AlGaAs, it is not a window at all, let alone an access way. Accordingly, claim 3 is also independently allowable over Aronson.

With respect to claim 4, Aronson discloses a photodetector located on the active (i.e. emission) side of the lasers that acts as an absorbing region. This is completely different from what is claimed, since the substrate on which the laser (elements 202-207) was grown would abut contact 201. Accordingly, claim 4 is also independently allowable over Aronson.

With respect to claim 7, although Aronson mentions bottom emitting lasers in the context of the prior art to that patent, it does not disclose using such a laser in any configuration other than by placing the photodetector on the active (i.e. emission) side of the laser – irrespective of whether the laser is top or bottom emitting. Accordingly, claim 7 is also independently allowable over Aronson.

With respect to claims 12 and 13, the alleged “absorbing region 215” of Aronson is not an absorbing region as set forth in the claims because it is located in the wrong place, it is on the active side of the laser as opposed to the claim requirement that it be located on the passive side.

Accordingly, claims 12 and 13 are also independently allowable over Aronson.

With respect to claims 20-24, it is respectfully suggested that the rejection is improper both legally and factually. First, the Office Action incorrectly states the law of inherency which requires that the result be the necessary and only result. Second, the claim is not a product by process claim at all (which is a product claim), it is a claim simply directed to a method performed by a device. Third, Aronson does not disclose performing any of the recited method steps of claims 20-24 at all since it places its photodetector on the active side of the laser. Accordingly, claims 20-24 are also independently allowable over Aronson for these additional reasons.

Claim 1 has also been rejected under 35 U.S.C. 102(b) as being anticipated by Lin et al., U.S. Pat. No. 5,491,712 (“Lin”).

It is respectfully submitted that Lin is no better than Aronson in that it suffers from the same fundamental defect – the absorbing region or Schottky contact is located on the active (i.e. emission) side of the laser, whereas the claim requires the opposite. Accordingly, claim 1 distinguishes over Lin for the same reason it is distinguished over Aronson and withdrawal of the rejection is requested.

Claims 16-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Aronson or Lin. It is respectfully noted that claims 16-19 all depend from allowable claims and thus are allowable for the same reasons. Withdrawal of the rejection of claims 16-19 is requested.

Claims 8-9 have also been rejected under 35 U.S.C. 103(a) as being unpatentable over Aronson in view of Lee et al. U.S. Pat. No. 5,674,712 (“Lee”). The rejection is respectfully

traversed. First, it is pointed out that claims 8-9 depend from allowable claims and thus are allowable by virtue of that dependency. Second, claim 8 specifically recites “an electronic chip hybridized to the laser.” In contrast, Lee describes a monolithically integrated device, not two devices hybridized together. Moreover, there is no teaching or suggestion that would provide any motivation to: i) form Lee as a hybridization of an electronic chip to a separate laser-bearing chip, ii) create the device of Aronson (ignoring the configuration problems noted above) using the approach of Lee, or iii) combine Aronson and Lee in any manner that would arguably achieve the claimed invention. Although Lee states at col. 9, lines 32-33 that “[o]ther known forms of lasers and photodetectors may be employed” the disclosed Lee lasers are a particular type of edge-emitting lasers whereas claim 1 and all claims depending from it specifically recite a “VCSEL-type laser.” While it may be the case that Lee would work with other types of edge-emitting lasers (a point neither verified nor relevant), Applicants question whether the approach of Lee could work with a VCSEL laser at all, let alone be combined with Aronson to do so without undue (and inventive) experimentation. Accordingly, claims 8-9 are independently allowable over a combination of Aronson and Lee.

In light of the above, it is respectfully submitted that all of the pending claims are allowable.

**Amendments to the Specification and Abstract**

Applicants appreciate the noting that “Schottky” has been misspelled in places. As a result, the application has been reviewed and amended to correct similar misspellings throughout. In addition, the Specification has been amended to reflect the reference numeral change entered into FIG. 19. Finally, the “Brief Description of the Drawings” section has been amended to add

descriptions of FIG. 11 through FIG. 24 using text taken from the "Detailed Description" section. It is respectfully submitted that none of these amendments to the Specification add new matter.

**CONCLUSION**

It is respectfully submitted that all of the pending claims are allowable and early favorable action in that regard is solicited. In the event any issues remain that could potentially be resolved by telephone, the Examiner is urged to contact the undersigned at the number indicated below.

Should any additional fee(s) be required for the entry of this Amendment, the Commissioner is hereby authorized to charge Deposit Account No. **13-4500**, Order No. **4024-4043**.

Respectfully submitted,

MORGAN & FINNEGAN

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By:



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